

DOCKET NO. PHNL 000222 (PHIL06-00222)
SERIAL NO. 09/846,607
PATENT

IN THE CLAIMS:

Please amend the claims as follows.

1. (Currently Amended) An assembly comprising:

a display device provided with a pattern of pixels associated with color filters, and

an illumination system for illuminating the display device,

said illumination system comprising a light-emitting panel and at least one light source,

said light source being associated with the light-emitting panel,

the light source comprising at least three light-emitting diodes having different light-emission wavelengths,

said light-emitting diodes being associated with the color filters,

said illumination system operable to drive the at least three light-emitting diodes to separately control the intensity of light emitted in at least one of said different light emission wavelengths and thereby change a color temperature and illumination level of a picture to be displayed by the display device, wherein an intensity of light emitted by the light-emitting diodes varies in response to an illumination level of the picture to be displayed by the display device.

2. (Previously Presented) An assembly as claimed in claim 1, wherein:

the light source comprises three light-emitting diodes having different light-emission wavelengths, and

the color filter comprises three color filters,

a spectral emission of each one of the three light-emitting diodes being substantially adapted to a spectrum of one of the color filters.

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3. (Previously Presented) An assembly as claimed in claim 1 or 2, wherein:

the light source comprises at least one blue light-emitting diode, at least one green light-emitting diode and at least one red light-emitting diode,

the color filter comprises a blue, a green and a red color filter, and

in operation, the blue color filter predominantly passes light originating from the blue light-emitting diode, the green color filter predominantly passes light originating from the green light-emitting diode and the red color filter predominantly passes light originating from the red light-emitting diode.

4. (Previously Presented) An assembly as claimed in claim 1 or 2, wherein at least one of the light-emitting diodes is chosen such that the wavelength associated with a spectral maximum of the light-emitting diodes corresponds to a wavelength associated with a spectral maximum of the corresponding color filter in the visible spectrum.

5. (Previously Presented) An assembly as claimed in claim 4, wherein the wavelength λ_{led}^{max} associated with the spectral maximum of at least one of the light-emitting diodes and the wavelength λ_{cf}^{max} associated with the spectral maximum of the corresponding color filter meet the relation: $|\lambda_{led}^{max} - \lambda_{cf}^{max}| \leq 5 \text{ nm}$.

6. (Previously Presented) An assembly as claimed in claim 1 or 2, wherein a spectral bandwidth (FWHM) of the light-emitting diodes lies in a range between $10 \leq \text{FWHM} \leq 50 \text{ nm}$.

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7. (Previously Presented) An assembly as claimed in claim 6, wherein the spectral bandwidth lies in a range between $15 \leq \text{FWHM} \leq 30$ nm.

8. (Canceled).

9. (Previously Presented) An assembly as claimed in claim 1 or 2, wherein the intensity of the light emitted by the light-emitting diodes can be adjusted on a frame-to-frame basis.

10. (Previously Presented) An assembly as claimed in claim 1 or 2, wherein the intensity of the light emitted by the light-emitting diodes can be adjusted for each color on a frame-to-frame basis.

11. (Previously Presented) An assembly as claimed in claim 1 or 2, wherein each one of the light-emitting diodes has a luminous flux of at least five lumens.

12. (Previously Presented) An assembly as claimed in claim 11, wherein the light-emitting diodes are mounted on a printed circuit board.

13. (Currently Amended) A display device for use with an illumination system, comprising:

a liquid crystal display panel comprising a plurality of liquid crystal elements operable to selectively allow passage of light from the illumination system; and

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at least one color filter operable to filter the light allowed to pass through one or more of the liquid crystal elements to produce one or more pictures;

wherein the illumination system drives at least three light-emitting diodes having different light-emission wavelengths to separately control the intensity of light emitted in at least one of said different light emission wavelengths and thereby change a color temperature and illumination level of the one or more pictures, wherein an intensity of light emitted by the light-emitting diodes varies in response to an illumination level of the picture to be displayed by the display device.

14. (Currently Amended) An illumination system for use with a display device, comprising:

a light-emitting panel;

at least one light source associated with the light-emitting panel, the at least one light source comprising at least three light-emitting diodes having different light-emission wavelengths, the light-emitting diodes associated with color filters in the display device; and

a controller operable to drive the at least three light-emitting diodes to separately control the intensity of light emitted in at least one of said different light emission wavelengths and thereby change a color temperature and illumination level of a picture to be displayed by the display device, wherein an intensity of light emitted by the light-emitting diodes varies in response to an illumination level of the picture to be displayed by the display device.

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15. (Previously Presented) An assembly as claimed in claim 1, wherein:

the picture to be displayed by the display device is associated with one of a plurality of emission standards, each emission standard associated with a standardized color triangle; and

the illumination system is operable to tune the light-emitting diodes such that the display device displays the picture in accordance with the standardized color triangle of the emission standard associated with the picture.

16. (Previously Presented) An assembly as claimed in claim 15, wherein:

the picture comprises one of a plurality of pictures, the plurality of pictures associated with different emission standards; and

the illumination system is operable to tune the light-emitting diodes such that the display device displays each of the pictures in accordance with the standardized color triangle of the emission standard associated with each of pictures.

17. (Previously Presented) An assembly as claimed in claim 15, wherein the plurality of emission standards comprise National Television Standards Committee (NTSC), European Broadcasting Union (EBU), and High Definition Television (HDTV) emission standards.

18. (Previously Presented) A display device as claimed in claim 13, wherein the at least one color filter comprises blue, green, and red color filters.

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19. (Previously Presented) An illumination system as claimed in claim 14, wherein:
the picture to be displayed by the display device is associated with one of a plurality of
emission standards, each emission standard associated with a standardized color triangle; and
the controller is operable to tune the light-emitting diodes such that the display device
displays the picture in accordance with the standardized color triangle of the emission standard
associated with the picture.

20. (Previously Presented) An illumination system as claimed in claim 19, wherein:
the picture comprises one of a plurality of pictures, the plurality of pictures associated
with different emission standards; and
the controller is operable to tune the light-emitting diodes such that the display device
displays each of the pictures in accordance with the standardized color triangle of the emission
standard associated with each of pictures.